

SHAUL'SKIY, F.I., prof., doktor tekhn. nauk; SOLOGUB, N.K., kand.
tekhn. nauk

Interaction between railroad and automotive transportation.
Zhel. dor. transp. 45 no.4:31-34 Ap '63.

(MIRA 16:4)

(Transportation)

SHAUL'SKEY, F.I., prof., doktor tekhn. nauk; SOLOGUB, N.K., kand. tekhn. nauk

Combination of suburban and city passenger transportation in large
junction stations. Zhel. dor. transp. 47 no.9:44-47 S '65. (MIRA 18:9)

SHAUL'SKIY, S., mayor

Terrain for training range-finder operators. Voen. vest. 40
no.1:120-121 Ja '61. (MIRA 13:12)
(Range finding)

SHAUL'SKIY, S.

Innovators. Sov.shakht. 10 no.6:17 Je '61. (MIRA 14:9)
(Donets Basin--Coal mines and mining--Technological
innovations)

LIVSHITS, L.S., inzh.; SHAUL'SKIY, V.A., inzh.

Making supports for electric power transmission lines using molds
for forming multihollow panels. Nov.tekh.mont. i spets.rav.v stroi.
21 no.10:21-24 0 '59. (MIRA 12:11)

1. Eksperimental'no-konstruktorskoye byuro Eksperimental'nogo zavoda
zhelezobetonnykh izdeliy NII-200.
(Electric lines--Poles) (Precast concrete)

SHAUL'SKIY, V. I., LAREK, D. P., OBRATSOV, V. I., NADEZHIN, S. P., and
SOKOVICH, V. A.

"Importance of a unified technological process in Railroad transportation and Method of Procedure." Edited by Academician V. n. Obratsov, Academy of Sciences USSR. Section on Scientific Solution of Transportation problems, Academy of Sciences, USSR, 1949, 160 pp, 1, 500 copies.

AUTHORS: Shauman, A.M. and Zanadvorov, P.N. 05190
 TITLE: Frequency Locking in a Self-oscillator with Two Degrees of Freedom SOV/141-2-2-15/22

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Radiofizika, 1959, Vol 2, Nr 2, pp 267 - 276 (USSR)

ABSTRACT: A simple feed-back oscillator has a pair of coupled tuned circuits connected between grid and cathode. The conditions but maintain a small amount of "splitting" of the normal frequencies of the circuits. The circuit, shown in Figure 1, is described by the Eq (1), on the assumption that the valve works in the 'soft' regime. The proper frequencies are n_1 and n_2 and $\mu = n_1(MS_0 - R_1 C_1)$ is chosen as the small parameter. The frequency condition is Eq (2). When Eq (5) is satisfied the roots of Eq (2) are degenerate and Eq (1) merely describes an oscillator with a single degree of freedom with free oscillations in a coupled winding. When the frequency of the external force is close to that of either circuit, Eq (4) describes 'double resonance'.

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SOV/141-2-2-15/22

Frequency Locking in a Self-oscillator with Two Degrees of Freedom

From Eqs (1) and (4), the time derivatives of A , B , C , D , slowly varying functions of time, can be evaluated giving the set of abbreviated equations (5). In the steady state this last system degenerates into a set of algebraic equations from which 'resonance curves' may be found. The stability condition, that the real parts of the roots are negative, can be found from Eq (6) or, more shortly, $f(\lambda) = 0$, which follows it. For the case of equal proper frequencies and damping the resonance curves and stable and unstable (cross-hatched) areas are plotted in the

R^2 a plane in Figure 2. $R^2 = (A + C)^2 + (B + D)^2$; $a = (p - \omega_1)/\mu$ where p is the frequency of the external force. The coupling factor $\gamma = NCn^2$ takes values 0.05, 0.025, 0.0125, 0.01 and A_1 , A_2 , A_3 , A_4 and A_5 are parameters, taking simple values, usually zero. Figure 3 is an isometric view of the R^2 curves when γ is allowed continuous variation. The value $\gamma = 0.0125$ corresponds to critical coupling. The qualitative behaviour of the curves of Figure 2 are described in Section 4.

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Frequency locking in a Self-oscillator with Two Degrees of Freedom

Experimental work has been carried out with an arrangement whose block diagram is in Figure 4. The tuned circuits of the oscillator are set to 170 kc/s. A variometer enables the coupling to be varied from $\gamma = 0$ to 0.1. The output is examined on a ASChKh-1 spectrum analyser (0 - 20 kc/s) after conversion using a local oscillator tunable from 160-180 kc/s. By setting in a particular value of external driving force and gradually adjusting the coupling the appearance of the spectrum on the display tube could be correlated with the expectations of Section 4. The agreement is satisfactory and the theory may be used to predict the limits to the regions of stable locking for given values of locking signal and coupling. There are 4 figures and 4 Soviet references.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: December 12, 1958

Card 3/3

SHAUMAN, A.M.; CHIRKOV, M.K.

Keyboard-type table computer. Vych. tekhn. i vop. prog. no.1:3-10
'62. (MIRA 16:6)

(Electronic computers)

SHAUMAN, A.M.

Arithmetical section of a keyboard-type table computer. Vych.
tekh. i vop. prog. no.1:11-22 '62. (MIRA 16:6)
(Electronic computers)

SHAUMAN, A.M.; BEREZNAYA, I.Ya.; SAPRONOVA, R.P.

Operational memory register. Vych. tekhn. i vop. prog. no.1:
39-47 '62. (MIRA 16:6)

(Electronic computers)

ACCESSION NR: AT4008630

S/3040/63/000/002/0003/0015

AUTHOR: Shauman, A. M.

TITLE: The problem of selecting interference-immune code

SOURCE: Leningrad. Universitet. Kafedra vy*chislitel'noy matematiki i vy*chislitel'ny*y tsestr. Vy*chislitel'naya tekhnika i voprosy* programmirovaniya, no. 2, 1963, 3-15

TOPIC TAGS: cybernetics, code, code interference, interference immunization, code selection, interference free code, error detecting code, error correcting code, digital computer

ABSTRACT: Certain problems are considered, connected with the construction of computers whose operation is monitored by using error-detecting codes. The choice of a particular code is found to be governed by the type of arithmetic unit employed and by the most economic construction of the arithmetic unit. Several of the widely

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ACCESSION NR: AT4008630

used codes are described and the block diagrams of a few checked adders are briefly discussed, with emphasis on the algebraic logic involved in the operations. The amount of equipment used in different error checking systems is compared, with the "multiple of three" code turning out to require less equipment (by a factor of 2.5) than the code "with excess three." Orig. art. has: 4 figures and 33 formulas.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 11Jun62

DATE ACQ: 23Jan64

ENCL: 02

SUB CODE: CP

NO REF. SOV: 002

OTHER: 008

Card 2/4

L 23850-65 EWT(d)/EED-2/EWP(1) Po-4/Pq-4/Pg-4/Pk-4 IJP(c) BB/CG
ACCESSION NR: AT5001651 S/3040/64/000/003/0003/0015

AUTHOR: Shauman, A. M.

TITLE: Concerning one class of error-correcting adders *B+1*

SOURCE: Leningrad. Universitet. Kafedra vychislitel'noy matematiki
i tsentr. Vychislitel'naya tekhnika i voprosy programmirovaniya,
no. 3, 1964, 3-15

TOPIC TAGS: adder^{16c}, error correcting code

ABSTRACT: In view of the difficulties encountered in the construction of arithmetic adders are constructed with special error-correcting codes, and in view of the appreciable difficulty in the realization of the arithmetic operations, especially when decimal adders are used, the author considers a method of correcting single errors in an adder, based on the analysis of the remainders of the codes of the main and complementary control adder. The adder is

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similar in principle to that described by W. W. Peterson (IBM Journal of Research v. 2, No. 2, 1958, pp. 166-168). It is assumed that the information on the addend is in the form of a main p-digit code, subject to error, and complementary m-digit code, not subject to error. Several theorems are proved concerning the validity of checking the correctness of the addition by means of control symbols, which are remainders of the given numbers with respect to a certain modulus. Orig. art. has: 2 figures, 24 formulas, and 4 tables.

ASSOCIATION: Leningradskiy universitet (Leningrad University)

SUBMITTED: 11Nov63

ENCL: 00

SUB CODE: DP

NR REF SOV: 003

OTHER: 002

Card 2/2

L 22880-65 EED-2/EWT(d)/EWP(1) Pg-4/Pk-4/Po-4/Pt-4 IJP(c) GG/BB
ACCESSION NR: AT5001652 S/3040/64/000/003/0031/0043

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BT1

AUTHOR: Rukolayne, A. V.; Shauman, A. M.

TITLE: On the performance of arithmetic operations with an error-correcting code

16C

SOURCE: Leningrad. Universitet. Kafedra Vychislitel'noy matematiki i Vychislitel'nyy tsentr. Vychislitel'naya tekhnika i voprosy programmirovaniya, no. 3, 1964, 31-43

TOPIC TAGS: error correction coding, arithmetic unit, digital computer programming, coding evaluation

ABSTRACT: The authors consider methods of performing arithmetic operations on numbers represented in a $3n$ error-correcting code in a sequential computer having a definite arithmetic unit construction. It is assumed that the arithmetic unit consists of a single-digit adder operating in the $3n$ code, three shift registers with a "nominal" number of digits, and a local control circuit. The adder and the local control circuitry are essentially the same as described by Shauman earlier (Vychislitel'naya tekhnika i voprosy programmirovaniya, no. 1, Izd. LGU, 1962, 11-22), except for addition of common-multiple checks. In the case of the

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In code the most suitable are the sets of common multiples, 1, 2, 4 and 1, 2, 4, 8. The subtraction of the multiples is employed to reduce the number of components into which the multiplicand is broken up. The arithmetical operations of multiplication and division with this error-correcting code are described in detail. It is noted that the use of common multiples of multiplicands and divisors reduces the multiplication and division time by factors 4.5 and 2.5, respectively, at the cost of a slight increase in the equipment used in the arithmetic unit. Orig. art. has: 4 figures, 25 formulas, and 3 tables.

ASSOCIATION: Leningradskiy universitet (Leningrad University)

SUBMITTED: 11Jun63

ENCL: 00

SUB CODE: DP

NR REF SOV: 003

OTHER: 003

Card 2/2

RUKOLAYNE, A.V.; SHAIMAN, A.M.

Conducting arithmetic operations with a noiseproof code. Vych.
tekh. i vop. prog. no.3:31-43 '64. (MIRA 18:3)

SHAUMAN, Z.

E-2

Czechoslovakia / Analytical Chemistry.
Analysis of Inorganic Substances.

Abs Jour: Ref. Zhur - Khimiya No. 2, 1958, 4279

Author : Shauman, Z.

Title : Study of the Conditions for the Potassium and Sodium Determination in Silicates by Means of a Flame Photometer.

Orig Pub: Chem. Zvesti, 1957, 11, No. 3, 168-174

Abstract: For the determination of Na and K in silicates a Zeiss flame photometer model III with a light filter is used. The spectrum is excited in an acetylene flame under a pressure of C_2H_2 equivalent to a column of 40 mm. of H_2O and air at 0.4 atmospheres pressure. A mutual influence of Na and K is established as interfering with the analysis. An excess of Na_2O over K_2O has a

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amount

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Czechoslovakia / Analytical Chemistry.
Analysis of Inorganic Substances.

E-2

Abs Jour: Ref. Zhur - Khimiya No. 2, 1958, 4279

equivalent to that of the solution to be analyzed. To eliminate error, calibration curves with a composition ratio of $K_2O:Na_2O$ close to that of the solutions to be analyzed are used. Prior to the analysis the sample is dried at $110^\circ C$. To dissolve the sample 0.5g. of it, it is treated in a platinum dish with hydrofluoric acid. Then after the addition of 1.0 ml. of conc. HCl the sample is set aside for 1-2 hours and the contents evaporated on a sand bath. To the residue, equal amounts of HF and HCl are added, it is evaporated again and the residue calcined in a muffle furnace at $550^\circ C$. After cooling, 5 ml. of conc. HCl followed by hot water is added and mixed and the dish with its contents is then placed on the boiling water bath for 1/2 hour.

Card 3/4

KULMANOV, K.A., inzh. (Tashkent); SHAUMBURG, V.V., inzh. (Sverdlovsk)

Possible methods for the preparation of train sheets. Zhel.
dor.transp. 42 no.1:63-67 Ja. '60. (MIRA 13:5)
(Railroads--Traffic)

SHAUMYAN, A.O.

Streptomycin for treating erysipeloid diseases in out-patients.
Vest.ven. i derm. no.4:54 J1-Ag '55. (MLRA 8:12)

1. Iz Belorechenskoj zheleznodorozhnoy polikliniki Severo-
Kavkazskoy zheleznoy dorogi.
(ERYSIPELOID) (STREPTOMYCIN)

SHAUMYAN, G.A.

ARTOBOLEVSKIY, I.I.; ARTOBELVSKIY, S.I.; YUDIN, V.A.; SHAUMYAN, G.A.

"Methods for Analyzing Automatic Machines, Part II, Kinematic and Kinetostatic Analysis." Institute of Machine Studies, 1949.

САНДЖАРИ

600

1. SHALNYAN, G. A.

2. USSR (600)

Candidate of Technical Sciences. VMI imeni Bauman / Moscow Mechanical Machine Building inst. im. Bauman/ "Methods of Slight Automatization of Universal Lathes," Stanki i Instrument, 12, No. 6, 1941.

9. [REDACTED] Report U-1503, 4 Oct. 1951.

SHAUNYAN, G.A.

"The Automatization of Production Processes" Stanki i Instrument 10, No. 5, 1939
Engineer.

Report U-1505, 4 Oct 1951.

SHAUNYAN, G.A.

"'Multi-Machine' Servicing and Automatization of Machines," Iz. Ak. Nauk SSSR,
Otdel. Tekh. Nauk, No. 5, 1940.

Report U-1530, 25 Oct 1951.

CHAIKIN, G. A.

Automatic machinery Moskva, Gos. anuchnotekhn. izd-vo: mashinostroit. lit-ry,
1952, 643 p. (54-10311)

DJ13.S45

SHAYIN, I. A.

Osnovy teorii proektirovaniia stanokov -avtomatov i avtomaticheskikh lini. Teoriia proizveditel'nosti, struktura i sintez avtomatov i avtomaticheskikh lini, sintez kulachkovykh mekhanizmov. Izd. 2., dopoln. i ispr. Moskva, Mashgin, 1969. 241 p.

Theoretical principles of the design of automatic machine-tools and machine units; theory of output, structure and synthesis of automatic machines and machine units; synthesis of cam gears.

TL: Unclass

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1984.

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Osnovy teorii proektirovaniia stankovavtomatov; teoriia proizvoditel'nosti, struktura i sintez avtomatov, sintez kulachkovykh mekhanizmov. Moskva, Mashin, 1944. 311 p. illus.

Bibliography: p. 203-210.

Theoretical principles of automatic machine-tool design; theory of output; structure and synthesis of automatic machines; synthesis of cam gears.

CtY

DLC: T51185.848

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

SHAUMYAN, G.A., doktor tekhnicheskikh nauk, otvetstvennyy redaktor.

[Scientific widespread application of the experience of production innovators and paths of Soviet machinery science development; materials of the enlarged meeting of the Scientific Council of the Machinery Institute of the Academy of Sciences of the U.S.S.R. on December 10, 1952] Nauchnoe obobshchenie opyta novatorov proizvodstva i puti razvitiia sovetskoi nauki o mashinakh; materialy rasshirennogo zasedaniia Uchenogo soveta Instituta mashinovedeniia AN SSSR, 10 dekabria 1952 g. Moskva, Izd-vo Akademii nauk SSSR, 1953. 85 p. (MLRA 7:4)

1. Akademiya nauk SSSR. Institut mashinovedeniya. (Machinery)

BEZHANOV, B.N.; BUSHUNOV, V.T.; SHAUMYAN, G.A., doktor tekhn.nauk, prof.,
retsensent; KATONOV, V.A., dots, retsensent; GARBARUK, V.N., kand.
tekhn.nauk, nauchnyy red.; TKALICH, A.G., re.; DLUGOKANSKAYA, Ye.A.,
tekhn.red.

[Industrial automatic machines; theory and design] Proizvodstvennye
mashiny-avtomaty; teoriia i raschet. Moskva, Gos.nauchno-tekhn.
izd-vo mashinostroit. i sudostroit. lit-ry, 1953. 368 p. (MIRA 11:2)
(Machinery, Automatic)

SHAUMYAN, G.A., doktor tekhnicheskikh nauk.

Results of industrial innovators and the problems of machine technology.
(MLBA 6:6)

Vest.AN SSSR 23 no.4:3-14 Ap '53.

(Mechanical engineering)

SHAUMYAN. G., professor, laureat Stalinskoy premii, doktor tekhnicheskikh nauk.

Machinist Ryshkov's vibration damper. Tekh.mol. 22 no.6:4-6 Je '54.
(MIRA 7:6)

(Vibration) (Cutting tools)

741

.853

Problemy Avtomatostroyeniya (Problems of Automatic Machine Construction) Moskva, Mashgiz, 1955.

209 P. Illus., Diags., Formulae, Graphs, Tables.

At Head of Cover: 125 Let. Moscow. Vyssneye Tekhnicheskoye Uchilishche.

Bibliographical Material Throughout.

TJ213.S45

TREASURE ISLAND BOOK REVIEW

AID 776 - M

SHAUMYAN, G. A.

AVTOMATY (Automatic Machine Tools) 2nd, re-written edition.
Edited by A. Ya. Kolli. Published by the State Scientific and
Technical Publishing House of Machine Building Literature (MASHGIZ),
Moscow, 1955. 526 p. 10,000 copies printed.

This is an approved textbook for students in higher technical and engineering colleges, and may be useful to designers and technicians in machine-tool construction. This second edition is curtailed in size, it has additional material on computation and design.

The author discusses processing metals by cutting and presents means for determination of methods to be applied in machining metals, emphasizing those underlying characteristic principles which are common to practically all automatic machines. The theory of productivity of machines, their interdependence in complex operation, the determination of technological processes and methods, the selection of the number of cardinal points for a machine or automatic line, the determination of the kinematic and structural designs the calculation and design of cams, of directing and other mechanisms, and other subjects relevant to the construction of efficient machinery and higher productivity of labor, all these matters are discussed concisely by the author. Although, according to the author, only

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SHAUMYAN, G. A., Avtomaty

AID 776 - M

a part of the available material on the subject was utilized, this book mirrors the country's present-day studies and accomplishments in the mechanization of industrial processes.

The book contains 273 mathematical formulae, 484 pictures, drawings, sketches and graphs, some GOST standards, a list of 66 bibliographical references (1939-1954), all Russian, and some references to other scientists and books.

Chapter I. "Analysis of Working Machines" (p. 5-47). General considerations on production principles, plan and tempi outlined briefly. Machines and automatic machines, principle of productivity and type of losses are defined; methods for increased productivity of labor are outlined in the greater use of multiple-type machines and fully automatic machinery. The similarity of the underlying principles of all automatic machines is brought out; their volumetric coefficient is expressed in mathematical formulae.

Chapter II. "Technological Process as the Basic Consideration in Design of Automatic Machines" (p. 48-84). Elements, variants and progressiveness in the process. Principle of co-ordination.

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SHAUMYAN, G. A., Avtomaty

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Multi-spindle operation and multiple-machine installation as the means for increased production. Classification of automatic machine tools and the parts they process, illustrated by drawings and pictures of several typical machine types: 110, 1136, 1265, 1240, 147, 1731, 1290-P, and others.

Chapter III. "Processing Methods and Productivity of Machines (p. 85-126). Theoretical presentation of metal-cutting procedure and machine productivity; high efficiency of automatic machine as a criterion for finding the most favorable cutting method. Problems of automatic change, fastening of tools and control of cutting graphically illustrated (pp. 113-117, 120-121).

Chapter IV. "Kinematics and Construction of Automatic Machines" (p. 127-193). Basic groups of automatic machines illustrated with kinematic diagrams, pp. 140-155; construction of automatic machines, typical schematic drawings (p. 163) and diagrams of semi-automatic and automatic multi-spindle machine tools (pp. 173-176); construction of regulating mechanisms, control and auxiliary mechanisms (jaw clutches and couplings of cam-shafts), illustrated and supported with mathematical formulae.

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SHAUMYAN, G. A., Avtomaty

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Chapter V. "Cam Mechanisms" (p. 194-245). Basic types, classification, methods of kinematic analysis and calculations of cam mechanisms. Power-transmission and work done by cam mechanisms; determination of most-favorable pressure angle, design and determination of the efficiency of collaborating mechanisms; samples of analysis and evaluation of cam mechanisms in longitudinal carriages of multi-spindle automatic machines; formulae for designing cam mechanisms with most favorable size (Hertz' formula for determination of compressive stress at the area of contact when two curved surfaces are forced together). Design of cam surfaces, basic considerations: reduction of friction in collaborating parts and surfaces, quick change and fastening of cams, tappet stroke regulation, contacts. Manufacturing of cams.

Chapter VI. "Directing Mechanisms in Automatic Machine Tools" (p. 246-393). Idle and working cycles of directing and all-purpose mechanisms. Variety of spindles in automatic machine tools. Feeding mechanisms and their component parts. Mechanisms for holding machined part: mechanical, hydraulic and pneumatic types; mathematical determination (tables) of characteristics.

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SHAUMYAN, G. A., Avtomaty

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Turning and fixing mechanisms: Cam, lever and Maltese mechanisms; geared, hydraulic, pneumatic and electromotive mechanisms; fixing mechanisms: swinging devices in automatic machines, turret-head type, spindle blocks, turning tables; rotary automatic machines. Theoretical data for calculation of Maltese mechanisms. Various types of supports in a group of automatic machine tools. Attachments for specific work to be done by specialized automatic machine tools: turning, milling, drilling, thread-cutting and other special devices to transform the set-in arrangement.

Chapter VII. "Design of the Working Cycle and Adjustment of Automatic Machine Tools" (p. 394-444). Preparation of the flow sheet; determination of cyclical 'time-table' for working and idle stroke movements of all-purpose mechanisms; making estimate and cyclic graphs for adjustment automatic machine tools. The procedure of adjustment: selection of operation and type; adjustment of shaping and cutting automatic machines tools, shaping and longitudinal grinding of automatic machine tools, turrets and multi-spindle automatic machine tools; fitting of cams, estimate of efficiency. Adjustment of semi-automatic lathes.

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SHAUMYAN, G. A., Avtomaty

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Chapter VIII. "Driving Gear of Automatic Machine Tools" (p. 445-466). Working layouts of chain feed, main-drive gear and feeding gear. Stereometry of automatic machine tools: considerations for selection of correct set-up and proper geometrical axis.

Chapter IX. "System of Automatic Machines (Combination of Automatic Machine Tools, Automatic Lines, Automatic Shops and Automatic Plants)" (p. 467-510). Basic principles of aggregation. Analysis of productivity of aggregated machines. Differentiation and concentration of operation; determination of sections (number of stations or stop-overs) in automatic line. Labor productivity of operator in automatic line and volumetric coefficient of automatic line. Automatic lines, their field of application and classification.

Chapter X. "Operation of Automatic Machines" (p. 511-521). Longevity of automatic machine and its component parts. Information for shipping and installation of automatic machine tools. Lubrication of automatic machine tools. Removal of waste of automatic machine tools. Safety rules in operation of automatic

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SHAUMYAN, G. A., Avtomaty

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machine tools. Various devices of clearing automatic machine tools from metallic shavings, etc.

Bibliography.

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SHAUMYAN, G., professor, doktor tekhnicheskikh nauk

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(Machinery, Automatic) (Automation) (MLRA 8:11)

SHAUMYAN, G.A., doktor tekhnicheskikh nauk, professor.

Twenty-five years of existence of the specialty "Machine Tools and Automatic Machinery". [Trudy] MVTU no.38:3-5 '55. (MLBA 9:8)
(Machine tools) (Mechanical engineering--Study and teaching)

SHAUMYAN, G.A., doktor tekhnicheskikh nauk, professor.

Science of automatic machinery. [Trudy] MVTU no.38:6-30 '55.
(MLRA 9:8)

(Machinery, Automatic) (Machine tools)

KOZHEVNIKOV, Sergey Nikolayevich; YESIPENKO, Yakov Ivanovich; RASKIN, Yakov Mikhaylovich; KOZHEVNIKOV, S.N., doktor tekhnicheskikh nauk, professor, redaktor; SHAUMYAN, G.A., laureat Stalinskoy premii, doktor tekhnicheskikh nauk, professor, retsenzent; BURAKOVA, O.N., redaktor; GLADKIKH, N.N., tekhnicheskiy redaktor.

[Elements of machinery] Elementy mekhanizmov. Izd. 2-oe, ispr. i dop. Pod red. S.N.Kozhevnikova. Moskva, Gos.izd-vo.obor.pro-myshl.,1956. 1078 p.

(MIRA 9:6)

(Machinery)

PRONIKOV, A.S., doktor tekhnicheskikh nauk, professor; ACHERKAN, N.S.,
doktor tekhnicheskikh nauk, professor, retsenzent; SHAUMYAN,
G.A., doktor tekhnicheskikh nauk, professor, redaktor; MATVEYEVA,
Ye. N., tekhnicheskiiy redaktor

[Wear and durability of machine tools] Iznos i dolgovechnost'
stankov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.
lit-ry, 1957. 274 p. (MLRA 10:5)
(Machine tools)

SHAUMYAN, G.A., prof., doktor tekhn.nauk

The economic effectiveness of using automation in machine building.
Mekh.trud.rab. 11 no.7:21-27 J1 '57. (MIRA 10:11)
(Machinery) (Automatic control)

SHAUMYAN, G.A., prof., doktor tekhn. nauk.

Evolution of automatic control. Tekh. mol. 25.9:19-23 S '57.
(Automatic control) (MLRA 10:9)

30-7-4/36

AUTHOR
TITLE

SHAUMIAN, G.A., Prof.

30-7-4/36

full automation in the Machine-Building Industry and Its Economic Effectiveness

(Kompleksnaya avtomatizatsiya v mashinostroyenii i yeye ekonomicheskaya effektivnost'. Russian)

PERIODICAL

Vestnik Akademii Nauk SSSR, 1957, Vol 27, Nr 7, pp 18 - 25 (U.S.S.R.)

ABSTRACT

The term full automation has to be interpreted as comprising all pertinent factories. Machine parts produced in one factory are passed on to the next factory (e.g. in automobile industry). When the automation was carried out in one factory, its capacity cannot be fully utilized, if the branch works do not possess automation. By far too many non-skilled workers are still employed in the highly-developed automobile industry. In automatically operated works the productivity hitherto by no means increased 10 - 15 fold (when the cost price was reduced by 5 - 10 %). By means of various tables the author gives a precise survey of the economy of purchasing automatically or semiautomatically working benches. Only if the means of automation guarantees a great reduction of losses one can talk about a real increase in production. The abolishment of the institution that man operates the machine is only then of a rational purpose, if man himself obtained a higher degree of knowledge in a technological re-

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30-7-4/36
Full automation in the Machine-Building Industry and Its Economic Effectiveness

spect. By the introduction of automation remarkable successes were hitherto attained in the U.S.S.R., but in the course of a more or less rapid development in this field difficulties and errors will be inevitable. It is only after the removal of bureaucratic barriers that an acceleration of automation may be brought about. (1 table and 3 illustrations).

ASSOCIATION Not given
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Card 2/2

Automatic Control of Machinery (Cont.)

SOV/1918

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AVAILABLE: Library of Congress (TJ1160.S454)

Card 4/4

TM/ad
9-10-59

SHAUMYAN, G. A.

G. A. Shaumyan, "On the Determination of the Optimum Pressure Angle in Cam Mechanisms."

paper presented at the 2nd All-Union Conf. on Fundamental Problems in the Theory of Machines and Mechanisms, Moscow, USSR, 24-28 March 1958.

SHAUMYAN, G.A., prof., doktor tekhn.nauk

Technology of industrial production and the theory of productivity. Nauch.dokl.vys.shkoly; mash.i prib. no.1:25-36
' 58. (MIRA 12:1)

1. Predstavleno kafedroy "Stanki i avtomaty" Moskovskogo
vyshego tekhnicheskogo uchilishcha imeni N.E. Baumana.
(Industrial management)

25(2)

PHASE I BOOK EXPLOITATION

SOV/2043

Moscow. Vyssheye tekhnicheskoye uchilishche imeni N. Ye. Baumana.
Kafedra "Metallorazhishchie stanki i avtomaty"

Voprosy avtomatostroyeniya [sbornik] (Problems in the Construction
of Automatic Machine Tools [Collection of Articles]) Moscow, Mash-
giz, 1959. 213 p. 3,200 copies printed.

Ed.: G.A. Shaumyan, Doctor of Technical Sciences, Professor; Ed. of
Publishing House: A.F. Balandin; Tech. Ed.: A.F. Uvarova; Manag-
ing Ed. for Literature on Metalworking and Tool Making (Mashgiz):
R.D. Beyzel'man, Engineer.

PURPOSE: This collection of articles is intended for engineers and
technicians in machine-tool manufacturing.

COVERAGE: This collection of articles deals with theoretical and ex-
perimental investigations on the functioning of transmission mech-
anisms of single-spindle bar-stock automatic machine tools, the
kinematic and dynamic design of cam mechanisms, and machining ac-

Card 1/5

Problems in the Construction (Cont.)

SOV/2043

Zagorodnikov, A.Ya. [Candidate of Technical Sciences, Docent]. Investigation of Transmission Mechanisms of Single-spindle Automatic Lathes 25

Transmission mechanisms (gearing between cam and operating unit) of single-spindle automatic lathes are reviewed. Bellows and ball-type transmission mechanisms are kinematically analyzed. The article describes a unit for testing transmission mechanisms designed by the author, automatic lathes with ball-type control, and GASH-11 and GASH-12 transmission mechanisms designed at MUTU.

Pronikov, A.S. [Doctor of Technical Sciences, Professor]. Methods for the Kinematic and Dynamic Design of Cam Mechanisms for Automatic Machine Tools 71

Types of cam mechanisms are described, basic formulas derived, and nomograms presented for their kinematic design. Methods for determining geometric parameters of typical cam mechanisms and review problems of kinematic analysis are given. The dynamic interpretation of formulas for kinematic analysis and design methods for maximum effectiveness of automatic machine tools are also pre-

Card 3/5

Problems in the Construction (Cont.)

SOV/2043

at Leningradskiy politekhnicheskij institut imeni Kalinina (Leningrad Polytechnical Institute imeni Kalinin) and used successfully to determine the rigidity of conventional lathes. A special dynamometer for the same purpose for use on the model 1112 automatic lathe is also discussed. Application of this dynamometer is shown.

AVAILABLE: Library of Congress

Card 5/5

GO/bg
9-18-59

SHAUMYAN, G., prof.

Reflections on automation. Izobr. i rats. no.9-5-7 S '59.
(Automation) (MIRA 13:1)

GAVRILOV, A.N., prof., doktor tekhn.nauk; DEM'YANYUK, F.S., prof., doktor tekhn.nauk; MITROFANOV, S.P., kand.tekhn.nauk; KORSAKOV, V.S., prof., doktor tekhn.nauk; IVANOV, D.P., doktor tekhn.nauk; STO-ROZHEV, M.V., kand.tekhn.nauk; MALOV, A.N., kand.tekhn.nauk; KUDRYAVTSEV, I.V., prof., doktor tekhn.nauk; SHNEYDER, Yu.G., kand.tekhn.nauk; SHUKHOV, Yu.V., dotsent; KAZAKOV, N.P., kand.tekhn.nauk; ZOLOTYKH, B.N., kand.tekhn.nauk; ROZENBERG, L.D., prof., doktor tekhn.nauk; YAKHIMOVICH, D.Ya., inzh.; NIKOLAYEV, G.A., prof., doktor tekhn.nauk; VLADZIYEVSKIY, A.P., doktor tekhn.nauk; SHAUMYAN, G.A., prof., doktor tekhn.nauk; KOSHKIN, L.N., kand.tekhn.nauk; BOBROV, V.P., kand.tekhn.nauk; NOVIKOV, M.P., kand.tekhn.nauk; VIKHMAN, V.S., kand.tekhn.nauk; DERBISHER, A.V., kand.tekhn.nauk; KLIMENKO, K.I., prof., doktor ekonom.nauk; VYATKIN, A.Ye., inzh.; SATEL', E.A., prof., doktor tekhn.nauk; FOFANOV, I.G., inzh.; MATVEYENKO, V.V., inzh.; KOCHETOVA, G.F., inzh., red.izd-va; EL'KIND, V.D., tekhn.red.; TIKHANOV, A.Ya., tekhn.red.

[Present status and trends of future development of technological processes in the manufacture of machinery and instruments] Sovremennoe sostoianie i napravleniia razvitiia tekhnologii mashinostroeniia i priborostroeniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 563 p. (MIRA 13:7)
(Machinery industry--Technological innovations)
(Instrument manufacture--Technological innovations) (Automation)

SHAUMYAN, G., prof., doktor tekhn.nauk

"Designing machinery" by I.I.Kapustin. Reviewed by G.Shaumian.
NTO 2 no.10:54-55 0 '60. (MIRA 13:10)

1. Zaveduyushchiy kafedroy stankov i avtomatov Moskovskogo vysshego
tekhnicheskogo uchilishcha im.Baumana.
(Machinery--Design)

PHASE I BOOK EXPLOITATION

SOV/5459

Shaumyan, Grigor Arutyunovich, Doctor of Technical Sciences, Professor

Avtomaty i avtomaticheskiye linii (Automatic Machines and Production Lines) 3d ed., rev. Moscow, Mashgiz, 1961. 552 p. Errata slip inserted. 20,000 copies printed.

Ed. of Publishing House: M. N. Morozova; Tech. Ed.: T. F. Sokolova; Managing Ed. for Literature on Metalworking and Machine-Tool Making: V. V. Rzhavinskiy, Engineer.

PURPOSE: This textbook is intended for the courses "Automatic Machines" and "The Automation of Manufacturing Processes" in schools of higher education; it may also be used by engineers as a handbook for process automation.

COVERAGE: Problems concerning the theory and practice of designing and operating automatic machines and lines are examined. Advanced Card.1/12...

SHAUMYAN, G.A., doktor tekhn.nauk, prof.

Problems of economic effectiveness of new equipment and means
for automation. Izv.vys.ucheb.zav.; mashinostr. no.12:31-42
(MIRA 15:2)
1961.

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni
Baumana.

(Industrial equipment. Technological innovations)
(Automation)

SHAUMYAN, Grigor Arutyunovich; MAKAROV, L.L., nauchnyy red.; KLIMOVICH,
Yu.G., red.; BARANOVA, N.N., tekhn. red.

[Program control of machine tools] Programmnoe upravlenie metal-
lovezhushchimi stankami. Moskva, Proftekhizdat, 1962. 174 p.
(MIRA 15:7)

(Machine tools--Numerical control)

SHAUMYAN, G.A., doktor tekhn.nauk, prof.

Theory of labor productivity and problems in the development
of science and technology. Izv.vys.ucheb.zav.; mashinostr.
no.9:5-14 '62. (MIRA 16:2)

1. Moskovskoye vyssheye tekhnicheskogo uchilishche imeni
Baumana.

(Labor productivity) (Research, Industrial)

SPRUKYAN, G.A., doktor tekhn. nauk, prof.

Problems of standardization and economic efficiency.
Standartizatsiia 29 no.9:45-49 S '65.

(MIRA 18:12)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche.

SHAUMYAN, G.G., applicant

Determining the pressure angles of cams. Izv. vys. ucheb. zav.;
 mashinostr. no.8:31-35 '65. (MIRA 18:10)

SHAUMYAN, K., nauchnyy sotrudnik

Ridding black currant nursery stock of diseases and pests.
Zashch. rast. ot vred. i bol. 10 no.12:28-29 '65.

(MIRA 19:1)

1. Plodovaya opyt'naya stantsiya Moskovskoy ordena Lenina
sel'skokhozyaystvennoy akademii im. K.A. Timiryazeva.

VVEDENSKIY, B., akademik; SHAUMYAN, L.

Universe in alphabetic order. Nauka i zhizn' 30 no.3:55-59 Mr
'63. (MIRA 16:5)

1. Glavnyy redaktor Bol'shoy sovetskoy entsiklopedii (for Vvedenskiy).
2. Zamestitel' glavnogo redaktora Bol'shoy sovetskoy entsiklopedii
(for Shaumyan).

(Encyclopedias and distionaries, Russian)

SHAURYAN, S. K. (Moscow)

"Logical Analysis of the Concept of the Structure of a Language."

Theses - Conference on Machine Translations, 15-21 May 1958, Moscow.

PRIME & TECH. EXPLOITATION

SOV/5088

Akademiya nauk SSSR

Primeneniye logiki v nauke i tekhnike (Application of Logic in Science and Technology) [Moscow] Izd-vo AN SSSR [1960] 357 p. Errata slip inserted. 10,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR.

Editorial Board: Resp. Ed.: I. V. Tavanets, E. Ya. Kol'man, G. N. Povarov and S. A. Yanovskaya; Ed. of Publishing House: R. Yu. Rozenberg; Tech. Ed.: S. T. Markovich.

PURPOSE: This book is intended for scientists interested in mathematical and symbolic logic.

COVERAGE: The book is a collection of 16 articles in which the authors discuss problems of mathematical logic and its application to computers, linguistics, zoology, methodology and various fields of technology. No personalities are mentioned. References follow all but one article.

Card 1/4

SOV/5088

Application of Logic (Cont.)

TABLE OF CONTENTS:

Yanovskaya, S. A. Some Patterns in Developing Mathematical Logic and Its Relation to Technological Applications	3
Yesenin-Vol'pin, A. S. On the Basis of the Set Theory	22
Revzin, I. I. Formal and Semantic Analysis of Syntax Relations in Language	119
Revzin, I. I. Logical Form of Linguistic Determinations	140
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Card-2/4

3/044/62/005/006/125/127
3160/3102

6.9900
9.7000

AUTHORS: Ivanov, V. V., Shaumyan, S. K.
TITLE: Linguistic problems of cybernetics and structural linguistics
PERIODICAL: Referativnyy zhurnal. Matematika, no. 6, 1962, 84-85,
abstract 6V465 (Sb. "Kibernetiku - na sluzhbu kommunizmu."
v. 1". M.-L., Gosenergoizdat, 1961, 218-234)

TEXT: In the first part of the article, which was written by S. K. Shaumyan, structural linguistics is defined as the study of natural languages from the point of view of their conversion into abstract codes, which serve as formal models of the natural languages. The author considers the basic types of linguistic structures to be binary structures of differential signs, distributive structures, and transformation structures. These structures should be studied from models obtained from mathematical methods (probability, information theory, logic, plurality theory, etc.). Structural linguistics as the abstract theory of language is the nucleus in the system of disciplines forming modern linguistics. In the second part, which was written jointly by the two authors, the

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Card 1/3

Linguistic problems of cybernetics and ... 8/344/62/000/ 06/125/127
E:60/E102

theoretical and applied significance of structural linguistics is discussed. The abstract codes of natural languages which structural linguistics deals with are basic codes with which codes in all other branches of science can be correlated. Structural linguistics therefore plays a leading part in relation to the other branches of semiotics. Structural linguistics serves as a theoretical basis for the development of methods for automating translation of scientific and technical literature (creation of an intermediate language, formalization of meanings by the methods of transformation analysis, etc.). The complete formalization of the meanings of units of natural language is the central problem of precise linguistics. This problem is also closely linked with the problem of creating information retrieval machines and information and logic languages in which information is coded by a small number of basic conceptions - differential elements of a kind (this is the connexion with structural linguistics). The problem of conversion from natural to information languages also arises. The part played by structural linguistics in the creation of "speaking" and "listening" machines is also noted as considerably easing communication between man and machine. At the present time, machines are capable of accepting, analysing, and

✓B

Card 2/5

Linguistic problems of cybernetics and ...

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B160/B102

translating only a specially prepared text and not any text. Further standardization in the language of scientific and technical literature will be of help in this. The authors consider that in the future a machine will also reduce the text to a standard form (i. e. edit it). The contact of structural linguistics with neurology (study of aphasiae) and defectology (use of machines to ease linguistic communication with people deprived of sight or hearing) will be of importance. Structural linguistics combines games theory with communicative models. The connexion of structural linguistics problems with problems of cryptography and cryptoanalysis, i. e. the encipherment and decipherment of codes, for example ancient scripts, is indicated. The ideas of structural linguistics are important also for studying the language of artistic literature and poetic language in particular (the problem of precise description of meanings once again arises). In conclusion it is pointed out that the appearance of structural linguistics means a revolution in linguistics, as a result of which linguistics will be turned from an empirical and descriptive branch of science into a precise branch of knowledge. [Abstracter's note: Complete translation.]

Card 3/3

SHAUMYAN, Sebastyan Konstantinovich

"Concerning the logical basis of linguistic theory"
Report to be submitted for the 9th international Congress of Linguists,
Permanent International Committee of Linguistics, Cambridge Mass. 27-31 Aug 62

SHAFRAN, S. K.

Dissertation defended for the degree of Doctor of Philological Sciences
at the Institute of Linguistics

"Problems of Theoretical Phonology."

Vestnik Akad. Nauk, No. 4, 1963, pp 119-145

SHAWMYAN, S. K.

"Two-level theory of phonology in the light of modern science of logic."

report submitted for 5th Intl Cong of Phonetic Sciences, Muenster, W. Germany,
16-23 Aug 64.

SHAKMAYAN, S., prof.

Outstanding worker of our party and state. Komm. Vooruzh. Sil
16 no. 10: 79-81 by 165. (MIRA 18:6

SHAUMYAN, V.A.

Doctor of Agricultural Science

"Successes of Soviet Selection in Livestock Hybridization."

Current Digest of the Soviet Press, Vol. 1, No. 12, 1949, page 53, (In [REDACTED] Library)

SHALIMAN, V. I.

Progress of Michurin's biology theories in dairy cattle breeding Moskva
pravda 1950. 23p. (51-17858)

SF239.S49

SHANNAN, V. A.

Methods of regulating the growth and development of animal organisms
Moskva, Pravda, 1951. 37p.

PRIMAKIN, I., aspirant; SHAUMYAN, V., doktor sel'skokhozyaystvennykh nauk.

Pens for several calves. Nauka i pered. op. v sel'khoz. 8 no.3:
18-20 Mr '58. (MIRA 11:3)

(Calves)

СМОУЛИН, В. А.
257.5

Грозденыя Как Средство Получения высоко, Устойчивый урожай. Сов.
Аграрии, 1948, №. 7, с. 29-31

SO: LETOPIS NO. 30, 1948

SHAUMYAN, V. A.

36760. SHAUMYAN, V. A., STANEVICH, V. S. i KOKOVIN, YE. V. Metody Melioratsii i Osvoyeniya Semel' Baraby. Gidrotekhnika i Melioratsiya, 1949, No. s, c. 3-24.

SO: Letopis' Zhurnal'ynkh Statey, Vol. 50, Moskva, 1949

SHAP'YAN, V. S., ed.

Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut gidrotekhniki i melioratsii. Rebuilding of the irrigation network in connection with changing over to a new irrigation system Moskva, Gos. izd-vo sel'khoz, lit-ry, 1952
186 p. (54-17484)

TC85.M6

1. Irrigation - Russia. I.

1. SHAUKYAN, V. A., Prof.
2. USSR (600)
4. Canals
7. Fighting seepage of water from canals. Priroda 41 no. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

SHAUMYAN, V. A.

Struyenaravly yushchiye sistemy (Flow regulator systems, by) V. A. Shaumyan i
A. G. Khaebatryan. Moskva, Sel'khozgiz, 1953. 127 p. illus., diagrs., tables.

SO: N/5
683.32
.55

SHAUMYAN, V.A., professor.

Surface-runoff irrigation by means of artificial channels with soil
drainage. Gidr.1 mel. 5 no.4:17-25 Ap '53. (MLRA 6:5)
(Irrigation)

SHAUMYAN, V.A., professor [author]; KUZNIK, I.A., kandidat geograficheskikh nauk
[reviewer].

Remarks on Professor V.A.Shaumian's article "Irrigation by surface run-off
using artificial channels with soil drains." Reviewed by I.A.Kuznik. Gidr.
i mel. 5 no.10:29-32 O '53. (MLR 6:9)

(Irrigation) (Shaumian, V.A.)

SHAUMYAN, V.A., redaktor

[Methods of controlling water losses from seepage in ponds, reservoirs, and irrigation systems] Sposoby bor'by s poteriami vody na fil'tratsiiu iz prudov, vodoemov i orositel'nykh kanalov. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1956.

426 p.

(MLRA 10:4)

(Irrigation canals and flumes) (Reservoirs) (Ponds)

ROZOV, Lev Parmenovich, professor; SHAUMYAN, V.A., professor; redaktor;
ASTAPOV, S.V., redaktor; KORBYSHO, Ye.G.; redaktor; FEDOTOVA, A.F.,
tekhnicheskii redaktor

[Soil science as related to land improvement] Meliorativnoe pochvo-
vedenie. Izd.2-oe, ispr. i dop. Pod red. V.A.Shaumyana i S.V.
Astapova. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1956. 438 p.
(Soils) (Reclamation of land) (MLRA 10:3)

SHAUMYAN, Vagram Arutyunovich, professor, doktor tekhnicheskikh nauk;
ORLOVA, V., redaktor; PAVLOVA, M., tekhnicheskiiy redaktor

[Operational principles of irrigation and drainage systems]
Osnovy ekspluatatsii orositel'nykh i osushitel'nykh sistem.
Moskva, Gos. izd-vo selkhoz. lit-ry, 1956. 461 p. (MLRA 10:2)
(Irrigation) (Drainage)

Translation from: Referativnyy zhurnal, Geografiya, 1957, Nr 7,
p 101 (USSR) 14-57-7-14833

AUTHOR: Shaumyan, V. A.

TITLE: Prevention of Salting and Swamping in **Irrigated lands**
(Metody bor'by s zasoleniym i zabolachivaniym
oroshayemykh zemel')

PERIODICAL: Tr. 8-y ob'yedinen. sessii AN TurkmSSR po vopr. str-va
Karakumsk. kanala i dal'neysh. razvitiya khlopkovosdtva
v Turkmenistana 1955. Ashkhabad, 1956, pp 157-179

ABSTRACT: The author shows that soils do not become saline when
salts are held in the deeper soil layers and in ground
waters, when they are isolated from the top soil layer,
when water table is deep, when irrigation waters do
not mix with ground waters, and when water does not
migrate upward in the soil. Water absorbed by plants
has no effect on soil swamping and salting. To insure

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14-57-7-14833

Prevention of Salting and Swamping (Cont.)

establishment of proper conditions, the author recommends a number of measures, chief among them being the prevention of water loss in fields and from canals, and prevention of water from being distributed at the times when it is not needed. The causes of repeated salting and swamping must be eliminated when salty and swampy lands are to be brought under cultivation. Proper drainage is extremely important in areas with high water table. The author presents a sample calculation of the basic elements of drainage net, and proposes a new system which involves a concept of the "non-drainability of an area."

Card 2/2

G. D.

SHAUMYAN, V.A., red.

[Irrigation on the "Pakhta-Aral" State Farm according to data from the out-of-town session of the Learned Council of the All-Union Scientific Research Institute of Hydraulic Engineering and Land Reclamation at the "Pakhta-Aral" State Farm] Oroshenie v sovkhوزه "Pakhta-Aral" po materialam vyezdnol sessii Uchenogo soveta VNIIGiM v sovkhوزه "Pakhta-Aral," Golodnaia step'. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1957. 126 p. (MIRA 11:5)
(Golodnaya Steppe--Irrigation)

SHAUMYAN, V.A., doktor tekhn.nauk

Always a crop. Izobr. i rats. no. 4:14-17 Ap '61.
(Irrigation farming)

(MIRA 14:4)

SHAUMYAN, V.A., doktor tekhn.nauk

Irrigation systems with distributing pipelines. Gidr. i mel.
13 no.3:34-47 Mr '61. (MIRA 14:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut
gidrotekhniki i melioratsii im. A.N. Kostyukova.
(Irrigation)

SHAUMYAN, V.A., doktor tekhn.nauk

Irrigation systems with distributing pipelines. Gidr. i mel.
13 no.3:34-47 Mr '61. (MIRA 14:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut
gidrotekhniki i melioratsii im. A.N. Kostyukova.
(Irrigation)